We claim:

1. A process for removing mercaptans from a fluid stream comprising mercaptans and further acidic gases, especially CO_2 and/or H_2S, which comprises
intimately contacting the fluid stream in an absorption or extraction zone with a scrubbing liquor comprising at least one tertiary aliphatic alkanolamine of up to 12 carbon atoms and a primary or secondary amine in an amount of up to 20% by weight as activator, which is free of alkyl or dialkyl ethers of polyethylene glycol, the amount of scrubbing liquor being supplied to the absorption or extraction zone containing an excess of the aliphatic alkanolamine, based on the acidic gases to be removed, whereby at least CO_2 and H_2S are removed essentially completely from the fluid stream, and
separating the substantially decontaminated lean fluid stream and the loaden scrubbing liquor and discharging them from the absorption or extraction zone.

2. A process as claimed in claim 1, wherein the scrubbing liquor contains from 10 to 70% by weight of the alkanolamine.

3. A process as claimed in claim 1 or 2, wherein the scrubbing liquor contains not more than 5% by weight of a physical solvent for mercaptans.

4. A process as claimed in any of claims 1 to 3, wherein the tertiary alkanolamine used is methyldiethanolamine.

5. A process as claimed in any of claims 1 to 4, wherein the scrubbing liquor contains as activator, a primary or secondary alkanolamine or a saturated 5- or 6-membered N-heterocycle which optionally contains further heteroatoms selected from oxygen and nitrogen.

6. A process as claimed in claim 5, wherein the activator is selected from the group consisting of monoethanolamine, monomethylethanolamine, diethanolamine, piperazine, methylpiperazine and morpholine.

7. The use of a mixture of at least one aliphatic alkanolamine of 2 to 12 carbon atoms and at least one saturated 5- or 6-membered N-heterocycle which optionally contains further heteroatoms selected from O and N and which acts as an activator, for removing mercaptans from fluid streams

comprising same, the mixture being free of monohydric and/or polyhydric alcohols.

8. The use as claimed in claim 7, wherein the alkanolamine is a tertiary alkanolamine, preferably methyldiethanolamine.

9. The use as claimed in either of claims 7 and 8, wherein the activator is piperazine or methylpiperazine.

10. The use as claimed in claim 9, wherein the mixture contains from 10 to 70% by weight of methyldiethanolamine, from 0.5 to 15% by weight of piperazine, and water.

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